NAVAJO COUNTY CDBG #123-16
911 EQUIPMENT UPGRADE

BID SPECIFICATIONS COVER SHEET

Dispatch Project Management
Scope of Work

This specification defines minimum requirements for the Project Management of this Dispatch Project.

The successful bidder shall provide for the Project Management of overall Project encompassed by the remaining Scopes of Work.

The overall Project scope, as outlined in the Request for Bids, is to replace obsolete 911 emergency dispatch consoles with new consoles.

Project management is a necessary component of this Bid to ensure that the following goals are met:
- Coordination of work between vendors and entities to minimize or eliminate disruptions to the Dispatch center
- Coordination for the installation and teardown of a temporary Dispatch Center to be used when the main Dispatch Center is being overhauled.
- A completely functional product is delivered to Navajo County

Project Management tasks performed by the successful bidder shall include:
- Development and management of the overall project timeline
- Coordination with various department leads, vendors, and other entities that are integral to the successful completion of this project.
- Provide a central Point of Contact for negotiation of schedule slippages to maximize available resources.
- Provide weekly status reports published to designees of Navajo County
- Provide bi-weekly meetings to discuss status of the project and changes in timelines or resources. These meetings do not have to be on-site, and may be provided for through telephonic conference bridges or video conferencing methods.

Bid Specification for a

Distributed and Redundant

VoIP Radio/Telephone Console System

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1.0 Scope

This specification defines minimum requirements for the equipment and operational requirements for a multi-position Voice over Internet Protocol (VoIP) based dispatch console system supporting both radio and telephony resources.

2.0 System Capacity

The preferred system will be capable of expanding to a minimum of 200 Console positions and 2000 endpoints (base stations, talk groups, telephone endpoints, etc.). The bid should include a detailed list of components including the item, manufacture, part #, and quantities.

3.0 System Architecture and Equipment

The VoIP dispatch console system shall be divided into three major components: Console Positions, System Gateways, and Endpoints, interconnected with industry-standard Ethernet-based IP infrastructure. No loss of system functionality shall be suffered due to geographic separation of components. A hybrid TDM-IP system requiring proprietary back-room equipment is not acceptable. All system elements shall be fully configurable via a password-protected administrator software application over a network connection, whether located on the local network or over a VPN. The system shall support a centralized configuration database configured with dedicated administrator software, and shall allow the administrator software to be run from multiple locations on the network. The administrator software shall allow the system elements to be divided into groups to assist in the management of large, enterprise-wide deployments. The database and associated software shall employ a method to prevent different administrators from editing the database at the same time. It shall be possible to assign each individual administrator rights, or privileges, to access and edit each portion of the system database.

The proposed system shall be capable of deploying configuration changes to the Console Positions over the network and take effect immediately without restarting system elements. Solutions that require each system element to be separately administered are not acceptable due to maintainability issues.

Endpoints are a combination of vendor and third-party radio and telephone resources that are accessed by the console positions. The proposed system architecture shall be flexible and open to support endpoint technologies from multiple vendors. Preference will be given to a proposed design that uses a software-based approached to endpoint interface and management.

3.1 Console Positions

Six (6) console positions ("console") shall physically consist of a Windows PC, a dedicated hardware or software IP media processor, audio peripherals, and a monitor. A wireless keyboard and mouse shall be used to operate the console.

The monitor shall display a graphical representation of endpoints, menus, controls, and system resource icons. Control of the user interface shall be via any Windows compatible pointing device (mouse, trackball, etc.). When equipped, the right mouse button on a pointing device shall activate PTT. **The PC that will be running the Spillman RMS will be provided by Navajo County. The PC device required to "run" the console shall be provided by the vendor.**

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To ensure proper audio quality, designs using PC soundcards for media processing shall not be acceptable. A dedicated hardware or software-based IP media processor shall be provided to perform audio processing, management, and presentation. A PC-based console utilizing an internal sound card for media processing is not an acceptable solution due to limited number of channels, inconsistent audio performance, and long-term maintainability issues.

The IP media processor shall provide the peripheral connections (e.g. speakers, jack box, desk microphone, etc.), vocoding function, digital audio mixing function, and an interface to the Console software running on a PC. The software based IP media processor shall utilize USB connections for its peripherals. The media processor shall be capable of receiving and transmitting all audio via Ethernet-based Internet Protocol packets and shall be capable of supporting multiple compression algorithms and codecs.

The console position equipment shall connect to the system gateway via 100BASE-T Ethernet to access endpoints or other consoles. T1, E1, or other non-Ethernet based connectivity is not acceptable.

The console graphical user interface shall be configured by administrator software to include system control buttons, audio level controls, and endpoint resources. All aspects of the console presentation and operation parameters shall be configured from the administrator software and downloaded to the console position. Both 4:5 and 16:9 (wide-screen) format displays shall be supported.

3.1.1 Windows PC

A standard PC shall be provided with each console position by Navajo County.

3.1.2 Hardware IP Media Processor

The hardware IP media processor shall provide the operator audio, PC interface, all peripheral interfacing for footswitch, headsets, desk microphone, and speaker audio. The IP media processor must be configurable to support interfaces for select and up to ten unselect speakers, a maximum of four microphone devices (headset or desk microphones), and a footswitch. Audio port assignment must be software configurable via administrator software and downloaded to the console position. All control and level settings must be digitally set; potentiometers which require manual adjustments are not acceptable.

The IP media processor shall be capable of automatically transcoding between different audio CODECs. At a minimum, G.711, G.729a, and G.726 CODECs shall be provided with the system. The media processor shall perform audio mixing for the console patching function. The design shall support a minimum of five (5) simultaneous patches per console. The patch function shall not cause a busy state in the console and shall allow the console operator to perform other duties while the patches are active.

Audio peripherals shall be connected to the IP media processor using industry standard RJ45 locking connectors to prevent accidental disconnection. All peripheral device connections shall be made via standard Ethernet patch cables utilizing RJ45 connectors for easy replacement. The media processor shall contain a dual NIC interface to support redundant network connections for enhanced reliability. Additionally, four Form C relays shall provide workstation state indications to external display devices. A front-panel mounted reset switch shall be provided as well as an LED to provide power status indication.

The media processor shall be configurable for vertical placement on the desktop, horizontal placement on a shelf, or mounted out of the way to conserve workspace. Mounting kits shall be available. Cooling shall be by convection; no fans are allowed. Each station shall have a Dispatch status light consisting of 3-color in red/yellow/green depending on the type of call and/or activity in which the Dispatcher is engaged. The status light will be similar in stall to the one below.

3.1.3 Software IP Media Processor

The software IP media processor shall provide the operator audio, all peripheral interfacing for footswitch, headsets, desk microphone, and speaker audio. The IP media processor must be configurable to support interfaces for a select and unselect speaker, two microphone devices (headset or desk microphones), and a footswitch.

The IP media processor shall be capable of automatically transcoding between different audio CODECs. At a minimum, G.711, G.729a, and G.726 CODECs shall be provided with the system. The media processor shall perform audio mixing for the console patching function. The design shall support a minimum of five (5) simultaneous patches per console. The patch function shall not cause a busy state in the console and shall allow the console operator to perform other duties while the patches are active.

Audio peripherals shall be connected to the IP media processor using industry standard USB connectors. Additionally, USB connected relays shall be available to provide workstation state indications to external display devices.

3.1.4 Hardware Console Peripherals

3.1.4.1 Speakers

The console speakers shall be individual, stackable units with a single cable providing audio and power from the IP media processor. Each speaker shall have an individual volume control. The speaker shall be configurable so the volume control cannot fully mute the speaker output. Each speaker shall feature a multi-colored LED to indicate power and receive audio activity.

3.1.4.2 Headset Jack Box

The headset jack box shall be designed to mount under a desktop surface and accommodate headsets and handset devices with an industry standard tip/ring/sleeve plug. The jack box shall be equipped with a single Ethernet patch cable providing audio and power from the IP media processor. It shall be possible to mount the jack box up to fifty (50) feet from the associated console. The jack box shall provide an industry standard PJ 327 dual tip/ring/sleeve jack supporting 4W and 6W (PTT) operation. The jack box shall provide an input for a hanger/hookswitch for use with handsets.

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3.1.4.3 PTT Footswitch

A rugged PTT footswitch with a non-skid weighted base shall be provided. The cable shall not require a proprietary connector to connect to the console position. When activated, the footswitch shall initiate a general PTT function on the selected endpoint.

3.1.4.4 Desk Microphone

A desktop microphone with a weighted base shall be provided. The base shall incorporate a PTT button and a CTCSS button. The microphone position shall be adjustable to accommodate users of different heights. The microphone element shall connect to the base using an industry standard "XLR" connector, allowing compatible microphones of different lengths and types to be substituted.

3.1.4.5 Ring/In Use Indicators

A solid-state, LED indicator shall be optionally provided that indicates a console position's activity to supervisory personnel. The indicators shall be administrator configurable to actuate when any of the following conditions exist: the PTT switch is active, a regular call is pending, an emergency call is pending, the microphone is live, or the console is busy. It shall be a configuration option to assign which type of endpoint activates each indication.

3.1.4.6 Dialer Keypad

The console shall support an external hardware keypad to use for telephone dialing. The keypad shall be a USB connected, COTS device. At a minimum, the keypad functions shall include 0-9, *, #, Backspace, Dial, Release, and Recall Dial Tone.

3.1.5 Software Console Peripherals

3.1.5.1 Speakers

The console speakers shall be COTS-type USB computer speakers, or alternately analog computer speakers connected to the PC's audio output.

3.1.5.2 Headset

The headset shall be COTS-type USB headset. A headset with a PTT switch that activates the general PTT function on the selected endpoint shall be available.

3.1.5.3 PTT Footswitch

A rugged PTT footswitch with a non-skid weighted base shall be provided. The footswitch shall connect to the console position's PC via USB. When activated, the footswitch shall initiate a general PTT function on the selected endpoint.

3.1.5.4 Desk Microphone

A desktop microphone with a weighted base shall be provided. The base shall incorporate a PTT button. The microphone shall be a COTS device and connect via a USB port, or alternately to the PC's audio input.

3.1.5.5 Ring/In Use Indicators

A solid-state, LED indicator shall be optionally provided that indicates a console position's activity to supervisory personnel. The indicators shall be administrator configurable to actuate when any of the following conditions exist: the PTT switch is active, a regular call is pending, an

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emergency call is pending, the microphone is live, or the console is busy. It shall be a configuration option to assign which type of endpoint activates each indication.

3.1.5.6 Dialer Keypad

The console shall support an external hardware keypad to use for telephone dialing. The keypad shall be a USB connected, COTS device. At a minimum, the keypad functions shall include 0-9, *, #, Backspace, Dial, Release, and Recall Dial Tone.

3.1.6 Radio Consolette Accessory

The system shall have a radio consolette accessory available as an option. The consolette shall run on a Window 7 32 or 64 bit, or Windows 8.1 Pro 64 bit desktop PC or laptop, and use COTS USB audio peripherals or the PC's built in speakers and microphone. The consolette shall support at least 4 radio endpoints, and at a minimum shall support Unit, Group and Emergency Calls, Paging and IP Logging Recording. The consolette shall support any type of radio endpoint defined in the system, and be configured using the same administration software tool as the console positions. Trial licenses for the consolette shall be available.

3.2 System Gateway

One system shall be provided with redundant PC-based gateways which interface to all system endpoints and consoles using IP. The gateways must be based on non-proprietary PC hardware and support automatic fail-over. Bidder shall state whether the PC hardware may be optionally supplied by customer.

The gateway(s) shall communicate and arbitrate control to all shared system resources, including radios (base stations, talk groups, control stations, etc.), telephone extensions, and remote monitoring and control devices (Aux I/O) without incurring performance penalties.

The gateway will perform all conversion functions to open and proprietary radio and telephone protocols that may be required. The gateway shall employ a modular software-based architecture to support new types of communication protocols and resources without requiring proprietary hardware. All gateway features shall be software based; no special or proprietary hardware shall be required. The gateway shall contain all the software necessary to interface the external endpoint devices directly through the enterprise network.

The gateway shall communicate to all endpoints via unicast protocols to reduce the need for multicast traffic to traverse the wide area network to minimize network infrastructure cost and complexity. Console positions shall be capable of communicating to the gateway via multicast for bandwidth optimization on the local area network.

Gateway administration shall be protected by user authentication. All updates and modifications shall take effect immediately after editing. Rebooting the gateway and/or console positions to enable a configuration change is unacceptable.

3.2.1 Gateway Redundancy

The gateway shall be deployed in a redundant configuration with automatic failover capability to ensure continuous uptime. Failover capability must provide a highly resilient system design that can continue to operate in numerous disaster scenarios. Such redundant capability must

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ensure that all endpoints continue to be available for uninterrupted control from all console positions.

3.2.2 Gateway Interfaces

To ensure maximum future flexibility and to allow a best of breed choice of radios and telephone technology, the gateway shall be capable of supporting the following endpoint technologies.

3.2.2.1 Telephony Endpoints

The bidder shall propose non-proprietary SIP-based telephony gateways for administrative phone circuits if a SIP PBX is unavailable. The gateways shall support FXO (POTS), T1 circuits, 2/4W tone keying, and E&M applications. Conventional Radio Endpoints

The bidder shall propose solid-state embedded RoIP (Radio over Internet Protocol) controllers that interface non-VoIP radio equipment to an IP network. The controller shall be certified to work over a range of temperatures from -20 to +60 degrees C to enable deployment to areas that do not provide controlled environments. Controllers must be remotely administered and protected via user authentication. The ability to remotely download firmware updates and upload/download configuration files shall be supported.

The radio controller shall perform analog-to-digital conversion of the audio as well as remote monitoring and control. The device shall work in conjunction with the gateway to provide interoperability with radios from different manufacturers. PC-based radio controllers are not acceptable due to security and maintenance liabilities. Controllers using potentiometers for audio level control are not acceptable.

Proposed system shall include all hardware necessary to support 48 RoIP endpoints.

3.2.2.2 Native IP Endpoints

The following native IP-based endpoints shall be supported via direct IP interface from the system gateway to the endpoint.

- ◆ P25 Conventional radios via the P25 DFSI standard (TIA-102.BAHA); exclusive use of proprietary protocols will not be acceptable.
- ◆ P25 Trunked Radio systems via the P25 CSSI standard (TIA-102.BACA); exclusive use of proprietary protocols will not be acceptable.
- ◆ MOTOTRBO Conventional radios (IP Site Connect) via direct IP connectivity to the repeaters; control station interfaces are not acceptable.
- ◆ MOTOTRBO Trunked radios (Linked Capacity Plus), single or multi-site, via direct IP connectivity to the repeaters; control station interfaces are not acceptable.
- ◆ MOTOTRBO Trunked radios (Connect Plus) via direct IP connectivity to the system controller; control station interfaces are not acceptable.
- ◆ TaitNET MPT1327 Trunked Radio systems.
- ◆ Session Initiation Protocol (SIP) telephony directly to Cisco, Avaya, and third-party IP-PBXs.
- ◆ Daniels Universal Interface Card (UIC) protocol.
- ◆ ICOM iDAS Conventional radios via direct IP connectivity to the system controller; control station interfaces are not acceptable.
- ◆ Kenwood NEXEDGE Trunked radios via direct IP wireline connection; control station interfaces are not acceptable.

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- Tier III DMR radios via the Application Interface Specification (AIS) standard; control station interfaces are not acceptable.
- ED-137 radios via direct IP wireline connection; control station interfaces are not acceptable.

Native IP-based endpoints shall support the ability to send answerback tones and keying tones, and shall support inbound DTMF decoding. IP-based endpoints using the IMBE vocoder shall support sending alert tones via commands to the vocoder, in lieu of sending them in an analog format, in order to preserve the tone's fidelity when heard by field personnel.

Proposed system shall include licenses to support 10 MotoTRBO IP Site Connect talkgroups

3.2.2.3   RoIP/Serial Protocol Endpoints

The following endpoints shall be supported via serial tunneling over IP from the RoIP endpoint to the system gateway.

- Sytech iSpace Nextel control station radio
- Sprint Direct Connect control station radio
- Harris M7100 control station radio
- Motorola URC-200 conventional radio
- Tait TM8255 control station radio
- Tait TM9155 control station radio
- Tait TM9300 control station radio
- Tait TM9455 control station radio
- Kenwood TK-5710 control station radio
- SmartNet/SmartZone control station radio

3.2.2.4   Auxiliary I/O Endpoints

The bidder shall propose solid-state Form C relays and isolated inputs to accomplish integrated remote control and detecting of external devices. A minimum of 24 each shall be proposed. It shall be possible to easily expand the number of I/O endpoints with the addition of expansion cards.

3.3   Legacy Console Migration

It shall be possible to connect the IP-based console system in parallel with the existing legacy console system and radio subsystem for simultaneous operation to allow for training of console operators on the new system and to minimize risk of migration. Bidders will state their ability to operate the new system in parallel.

4.0 System Capabilities

4.1   User Interface

Each console position shall be capable of enabling user authentication to provide security as well as free seating of console operators. The free seating feature shall allow console operators to log in at any console and receive their unique configuration. Each console position shall be configurable to display and/or access multiple unique user screens. These screens shall present the console operator with the endpoints, controls, and informational resources in the form of "electronic push buttons" labeled with names and status colors. Each screen shall be

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administrator configurable to display any combination of endpoints and/or controls, screen change shortcut pads, pop-up windows, call queues, activity history or a variety of other functions at any location on a screen. Button size, colors, text, and fonts shall be programmable on a per object basis. Background highlights, images and selectable colors shall be available to accent application workspace groupings. Optionally, the system shall be configurable to allow operators to choose from a pre-defined list of their console configurations. As an example, these configurations may be used for different geographic areas (north, south, etc.) to allow an operator to choose which region they will be dispatching in on a particular day.

Screens shall be comprised of a combination of endpoint, control, and informational resource graphics. Endpoint graphic shall display the authorized endpoints available to the operator at a particular console. Each endpoint graphic shall support a minimum of two lines of text to easily identify the endpoint. Endpoint status shall be shown in a separate endpoint text field. Status words shall be select, unselect 1-10, patch 1-5, monitor, hold, busy and mute. Call shall display flashing. The endpoint pad color shall be used to identify endpoint status condition so that overall console status can be determined at a glance. There shall be different endpoint status colors to identify the following conditions: Select, Unselect 1-10, Simul-Select, Patch 1-5, Monitor, Hold, and Mute.

Each endpoint shall have an individual volume setting for the Select state and the Unselect state. This volume level shall be retained when toggling the endpoint between different states and have an administrator configurable minimum level to prevent muting entirely. The volume level shall only affect a single console position.

A location configurable endpoint receive audio indicator window shall be present to aid in visual identification of active audio on a specific endpoint. The endpoint activity window background, normally white, shall be yellow when Receive Audio is present and shall be red during active TRANSMIT. The proposed system shall allow configurable icons to be added to endpoint pads enabling visual call indication to associate the call with the corresponding endpoint.

The system shall support the display of multiple programmable 12/24 hour clocks, a master PTT status bar, and VU meter.

It shall be possible to synchronize the time of day clock to an external time source using industry standard Network Time Protocol method.

4.2 Integrated Telephony

The proposed system shall provide integrated telephone capabilities at the console position. This includes support for both E911 headset sharing and Administrative circuits.

Support for Session Initiation Protocol (SIP) for connection to VoIP telephony systems and gateways is required for Administrative telephony functions. Console positions shall be capable of displaying resource icons on the user interface that map to telephony extensions. Console positions shall treat telephone extensions similarly to radios. A console may have multiple endpoint ("phone endpoint") appearances on its screen and allow multiple phone calls to be active simultaneously. Calls may be active, put on hold and patched to other phone endpoints and/or radio endpoints. Calls shall also be allowed to be monitored in an Unselect speaker without disconnecting the call. Extension status shall be visible to all consoles. Consoles shall not be restricted to one "phone patch."

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The gateway shall register each endpoint (extension) directly with its corresponding SIP proxy server and provide connectivity to any or all consoles. Each endpoint may reside on different IP-telephony devices and the gateway shall support multiple proxy servers.

The console position shall include a contact database with a minimum capacity of 10,000 entries. Contacts may be members of groups, which shall be available to offer quick access to related contacts. Multiple phone number entries shall be supported on a per contact basis. Alpha-numeric search strings shall be supported enabling rapid identification within the contact database.

Telephony functions shall include recall dial tone, call initiate, caller ID display (name and number) in the call queue, transmit caller ID, message on hold, missed call callback, and patch status. Definable telephone hunt groups shall be supported on a per-system, per-console and per-contact basis.

The system shall support the ability for multiple consoles to select the same telephone endpoint. Up to ten consoles shall be able to join the conversation. Each telephone endpoint shall be configurable to allow/disallow the barge-in capability. Additionally, each telephone endpoint shall be configurable for Push To Speak capability.

The Message on Hold function shall use a WAV file to play a recorded message to telephone endpoints put on hold. There shall be the ability to change the WAV file to one supplied by the console system administrator. Each telephone endpoint shall be set independently for its message WAV file.

The system shall support a NENA compatible E911 headset sharing interface on a per console position basis. This shall consist of a dedicated four-wire, 600 ohm audio connection and a signaling input to the console to indicate the telephone desk set is off-hook. The console position shall automatically enable the E911 audio to the operator headset and permit simultaneous radio operation. The NENA headset interface shall incorporate an echo reduction function to eliminate reflected audio on less than optimum telephone connections.

4.3   Conventional Radio Integration

Conventional radios shall be interfaced by a Radio Controller which shall communicate to the gateway via standard LAN/WAN equipment and be equipped for dual port operation. Each port's interface shall be capable of controlling a "direct connected" local radio or a tone remote controlled radio (locally or over a telephony circuit, 2W or 4W). In addition, each radio interface shall also be equipped with a serial data port to support open and proprietary radio-specific protocols.

When interfacing a radio, the Radio Controller shall perform the following functions under software control:

+ Interface analog audio to/from the radio
+ Convert audio to/from RoIP supporting a minimum of six CODEC choices to allow optimization of bandwidth use
+ Support an audio delay to avoid clipping of transmissions
+ Decode DTMF digits
+ Generate tones for transmission by the radio, either as an answerback event or upon a command from the dispatcher

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- Generate single or dual function tones, and for dual function tones generate them either simultaneously or sequentially
- Detect a carrier operated relay (COR) signal from the radio
- Provide push-to-talk (PTT) control to the transmitter
- Select a frequency of the transmitter, if the station supports this function
- Provide LED indications of TX and RX status as well as network status
- Support serial connectivity for control/status of radio technologies requiring such an interface
- Provide sharable remote Aux Input connections
- Provide sharable remote Relay Contact closures

4.4 Advanced Radio Integration

The system shall be capable of integrating radio functionality necessary to interface digital radio systems. As these system require an expanded feature set and respective user interface control, the proposed product must support at a minimum: group and individual calls, emergency display and clear, call alerting, call progress tones, radio ID display (when available), and the ability to change talk groups. If available, subscriber unit stun/revive and audio encryption is desirable.

All advanced radio endpoints shall be capable of being patched with both conventional radio and telephone endpoints with no additional impact on the system or extra operator functions required.

4.4.1 iDEN Support

The system shall interface via a RoIP Radio Controller to iDEN network radios. Two modes of operation shall be provided: single call and group call. iDEN call alerts shall also be supported. The user interface control shall enable an operator to easily initiate group and individual calls, visually identify on the circuit pad the current group selected and display radio ID for inbound calls from the field.

4.4.2 P25 Support

The system shall support integration to P25 radio interfaces utilizing the APCO approved DFSI (TIA-102.BAHA) and CSSI (TIA-102.BACA) standards. Exclusive use of proprietary protocols will not be acceptable.

4.4.3 P25 Control Station Support

The system shall support integration to P25 radio interfaces utilizing an intelligent control station method that provides advanced capability. Manufacturer specific protocols are acceptable for this method.

4.4.4 P25 CSSI Support

The system shall support integration to P25 trunked radio systems using the CSSI wire-line interface method for advanced capability. To minimize operator confusion, the proposed console shall intelligently route private calls to and from units from a single GUI control regardless of which RFSS the units are homed. Any associated incremental costs for P25 CSSI connectivity shall be included in the proposed solution for both the console and radio subsystem elements. At a minimum, the console's P25 CSSI capabilities shall include:

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a) Group Calls (SOR 2.1.2.2, 2.6.6.2)

b) System Wide Call (SOR 2.1.2.31)

c) Announcement Group Call (SOR 2.1.2.24)

d) Broadcast Call (SOR 2.1.2.22)

e) Unit-to-Unit Calls (SOR 2.1.2.4, 2.6.6.5)

f) Emergency Calls (SOR 2.1.2.25, 2.6.6.8)

g) Call Priority (SOR 3.3.5.5-9)

h) Dispatcher Interrupt (SOR 3.3.5.1/5)

i) Encryption (SOR 2.1.2.10)

j) Unit ID Display (SOR 2.1.2.20, 2.6.6.1)

k) Talk Group Selection/Display (SOR 2.6.6.3/4)

l) Encryption Mode Display (SOR 2.6.6.9)

m) Outgoing Call Alert (SOR 2.6.6.6)

n) Incoming Emergency Alert (SOR 2.1.2.18, 2.6.6.7)

o) Outgoing Radio Check (SOR 2.1.2.26)

p) Outgoing Radio Monitor (SOR 3.3.5.12)

q) Outgoing Radio Inhibit (SOR 3.3.5.10)

4.4.5 Airbus P25 Privileged Mode Support

The system shall integrate with Airbus P25 radio systems using the Privileged Mode of operation. Along with the other advanced radio feature, the system shall provide indication on each talkgroup of when they are operating in a Supergroup. Additionally, the system shall support Phase 2 P25 operation while in the Privileged Mode.

4.4.6 MPT1327

The system shall integrate with MPT radio systems on a wire-endpoint basis using the MAP27 protocol. The proposed system must scale to support 100+ conventional talk groups and must support the minimum advanced trunked radio feature set.

4.4.7 MOTOTRBO™ Support

The system shall support Motorola's IP Site Connect™ (Conventional), Linked Capacity Plus™ and Connect Plus™ (Multi-site trunked) MOTOTRBO systems. The system shall interface via direct "wire-endpoint" IP connectivity into the MOTOTRBO infrastructure. Third party interfaces for conversion shall not be acceptable. The proposed system must scale to support 100+ conventional endpoints and must support the minimum advanced trunked radio feature set.

4.4.8 ICOM IDAS™ Support

The system shall support ICOM's IDAS single and multi-site conventional systems. The system shall interface via direct "wire-endpoint" IP connectivity into the IDAS infrastructure. Third party interfaces for conversion shall not be acceptable. The proposed system must scale to support

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100+ conventional endpoints and must support the minimum advanced trunked radio feature set.

4.4.9 Kenwood NEXEDGE™ Support

The system shall support Kenwood's NEXEDGE single and multi-site trunked systems. The system shall interface via direct "wire-endpoint" IP connectivity into the NEXEDGE infrastructure. Third party interfaces for conversion shall not be acceptable. Both full rate and half rate channel spacing shall be supported. The proposed system must scale to support 100+ conventional endpoints and must support the minimum advanced trunked radio feature set.

4.4.10 Tier III DMR Support

The system shall support Tier III DMR trunked radio systems using the Application Interface Specification (AIS) standard. The system shall interface via direct "wire-endpoint" IP connectivity into the DMR infrastructure. Third party interfaces for conversion shall not be acceptable. The proposed system must scale to support 100+ conventional endpoints and must support the minimum advanced trunked radio feature set.

4.4.11 ED-137 Support

The system shall support ED-137 radios systems. The system shall interface via direct IP connectivity into the ED137 radios. Third party interfaces for conversion shall not be acceptable. The proposed system shall allow connection to both transmit/receive base stations as well as receiver-only base stations.

4.4.12 SmartNet / SmartZone Support

The system shall support connection to SmartNet and SmartZone control stations. The proposed system must support the group call, inbound emergency group call, and PTT ID with alias features at a minimum.

4.4.13 Kodiak Broadband PTT Support

The system shall support connection to the Kodiak broadband PTT gateway to allow access to AT&T subscriber units. The proposed system must support inbound and outbound group calls as well as inbound and outbound caller ID (ANI) with alias features at a minimum.

4.5 Dial-Up Radio Integration

Conventional radios shall be interfaced by a Radio Controller which shall communicate to the gateway via standard LAN/WAN equipment and be equipped with a telephone port that is FCC agency approved for connection to the Public Switched Telephone Network (PSTN). The telephone port shall be capable of accessing and operating remotely located radio endpoints over the PSTN to minimize leased circuit costs.

4.6 Default Transmit Group

The system shall allow a Default Transmit Group to be defined on a per-console basis. This feature shall allow a console operator to activate PTT to transmit on a pre-defined endpoint or group of endpoints without selecting those endpoints, or using Instant Transmit.

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4.7 Redundant Endpoints

The system shall allow redundant Radio Controllers to be configured for selected endpoints. The system shall detect the availability these endpoints, and automatically switch to the backup endpoint in case of a loss. The system shall also allow a console user to force a switchover to the redundant equipment.

4.8 CAD Integration

The provided solution shall offer an API at the console position level allowing third-party applications to control the console resources. The API shall support simultaneous use of both the standard console GUI and the third party CAD application.

4.9 Centralized Administration

The system shall provide a single administrator software application that provides for remote configuration and diagnostics for consoles, gateways, and endpoints. The administrator software shall support user authentication to prevent unauthorized access. The administrator software shall support live "push" configuration changes from a centralized database to any or all console positions without requiring users to log off. Systems that require individual, local console position configuration shall not be acceptable.

The administrator software must permit user interface changes to be created and tested in an off-endpoint state. The off-endpoint testing shall include the screen layouts/navigation, graphical elements, browser addressing, and contact groupings to eliminate the risk of errors before distributing the changes. Once the reviewed designs are approved, the new configuration can be "pushed" or distributed to the live consoles.

Every screen element, from graphical backgrounds to pad sizes, colors, and fonts, must be configurable by the administrator software. It shall be easy to design, maintain, and deploy new console screens using the software.

The administrator software shall provide a user login capability for security. Each configured login shall provide varying levels of access for each component of the maintenance tool. The access levels shall be No Access, Read-only Access, or Full Access.

4.10 Language Localization

The system shall provide localization support for languages other than English. At a minimum, French, Spanish, and Portuguese shall be supported. The language used shall be configurable for each console individually, and optionally for each user login at the consoles.

4.11 Logging/Archival Recorder Interfaces

The proposed system shall support recording of console and/or endpoints. Both Analog and IP recorders shall be supported.

Consoles shall be configurable to output the following audio sources:

♦ Select and Microphone audio, mixed together
♦ Unselect audio
♦ Telephony audio
♦ Radio audio

These audio sources shall be available in either traditional two-wire, 600-ohm analog output on the rear of the console or in standard streaming Real Time Protocol (RTP) format. For IP

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recording, the console shall transcode the IP audio into a user-selectable CODEC format. A minimum of three (3) CODECs shall be available to optimize bandwidth.

The proposed Radio Controller shall have an option to present an analog recording output on the second radio port. Alternatively, radio (and any endpoint) audio shall be presented to up to four (4) IP audio recorders by the System Gateway(s) using "Active Packet Forwarding." The Gateway shall be configurable to re-transmit both sides of the audio conversation to a recorder by allocating specific ports by which the recorder will capture all audio packets for the specified audio endpoints. Any paging tones sent by the Radio Controller shall be present in both the analog and IP recording outputs.

Both the console and endpoint logging recorder outputs shall include descriptive metadata. The metadata shall include information about the call such as Console ID, User Login Name, Endpoint Name and Endpoint Type. Depending on the endpoint type other data should present such as Radio Unit ID, Telephone Number Dialed, ANI/ALI, etc. The console vendor shall describe the metadata available and identify recorder vendors that are certified for using the metadata.

4.12 Diagnostics

The proposed system shall include easy to use diagnostics for each component to assist in troubleshooting problems. Each of these components must be accessible via a standard Web browser, or through the administrator software. Detailed log files shall be stored on the console position PCs to ensure the ability to easily pinpoint issues.

A diagnostic logger shall be available to centrally correlate the alarm and/or anomaly events within the proposed system. The diagnostic logger shall denote the date/time of an event, the source component of the alarm or event, the alarm type, such as "Alarm" or "Event," display the status of the event and include the severity of each such as Major or Minor for Alarms, and Low or High for system event anomalies. New arriving alarms shall be indicated on selected console positions with visual and audible alerts.

The diagnostics logger shall contain a "system view" that provides a snapshot of the system's networked components. Pertinent information shall be provided for each component, allowing a quick way to check system health.

4.13 SNMP Alarms

The proposed system shall generate SNMP traps to enable monitoring by 3rd party SNMP management software. The system shall allow up to four SNMP manager destinations to be configured.

4.14 Network Configuration and VoIP Quality of Service (QOS)

VoIP consoles shall be capable of communication across an enterprise WAN or private allocated network dedicated to the console system. IP network connectivity shall be 100Mb/s to interconnect all of the elements, from the consoles, to the gateways, to the VoIP endpoints. LAN segments shall support multicast.

The system shall support the QoS technique Differentiated Services Code Point (DSCP). Packets are marked using the Type of Service (ToS) field in the packet header. The network infrastructure shall be compatible and configured to recognize DSCP marked packets and act on them accordingly to ensure the proper QoS.

Each console position will support two Ethernet connections; one for the PC and one for the IP media processor. Gateways and endpoint devices shall each require one Ethernet port. Note: a dual port endpoint shall only require one Ethernet port.

The gateways shall communicate to all endpoints via unicast. For efficiency on the LAN, the gateway shall forward the unicast packets from the endpoint to the console positions via multicast.

Latency between network-based devices shall be controlled through adjustable buffers. The jitter buffer settings must be user-tunable on a per-device basis; both the endpoint and operator software must support this capability. Proposed solutions must support variable packet sizes down to 20ms, allowing the buffer to be variably set to a maximum of at least 60ms.

4.15 WAN Deployment

The system shall have the capability to be deployed across Wide Area Networks (WANs) that are incapable of being configured to carry multicast traffic. Network traffic shall be optimized to enable remote console/endpoint deployment on low-bandwidth network segments. Bidders shall describe the methods used to enable this capability.

4.16 Software Deployment

The system's software shall be capable of silent push deployment to allow administrators to install and update software from a central location.

4.17 Auxiliary Input / Output Control

System shall be capable of IP-based remote controllable auxiliary inputs and outputs. The system shall scale to support over 1,000 IP accessible I/O connections in multiple locations across an Enterprise network. Outputs shall be "Form C," configurable as momentary or latched relays. Inputs shall be optically isolated and trigger on detection of voltage, ground, or a contact closure. The inputs and outputs shall be 19 inch rack mountable devices that are locally powered.

4.18 Encryption

The proposed console system shall be capable of supporting industry standard encryption algorithms, including AES and DES when required by the deployed radio infrastructure. P25 Key Fill Devices (KFD) shall be supported to allow loading of encryption key sets from the KFD. An option shall be available to interface a Key Management Facility (KMF) for automated loading of encryption keys sets from the KMF. Selection of the appropriate key for each endpoint shall be permitted from each console position. Individual radio endpoints and talkgroups shall be configurable to always have encryption enabled. There shall be an option to allow endpoints using encryption to automatically change the encryption key being used for the next outbound transmission to match the inbound encrypted audio's key.

4.19 NENA 911 Headset

The system shall interface to a National Emergency Number Association (NENA) 911 emergency phone system by providing the capability to "share" the headset of a console position with an external Emergency 911 phone system. When an operator answers an emergency call on the console system, the system will automatically connect the incoming and outgoing audio to the phone system.

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4.20 Instant Recall Recording (IRR)

Each console position shall be equipped with an integrated recall recorder capable of recording receive audio for all active (unselect and select states) endpoints at a given operator's console position. The IRR display shall provide date/time stamp for each call, endpoint identification and ANI, call status (emergency or normal) and state of endpoint when call received (select, unselect 1-10).

To maximize screen efficiency and real estate, the Instant Recall Recorder operator controls shall be incorporated into the call activity history display. To conserve console position space, no additional hardware to support IRR is permitted. The operator shall have, at a minimum, the ability to select a call from the history window, fast forward and reverse through a call, pause a call, and advance to the next or previous instance of activity on an endpoint. IRR playback shall pause automatically when PTT is initiated at the console.

The IRR shall be capable of recording and replaying audio on a per endpoint basis for maximum intelligibility. Designs that mix audio from multiple endpoints in a single select or unselect channel for recording and replaying are not acceptable. Recording retention time shall be configurable for up to 24 hours.

4.21 Call Notifications

The system shall provide call notifications to the operator and initiate special handling of emergency calls. The call indication in the endpoint pad shall be configurable for flash rate, color, and text. The system shall also be capable of producing an audible alert WAV file alerting the user to a pending call. The endpoints on the console position shall be configured with default call indications by the administrator which may be "escalated" by the dispatcher to allow notifications on endpoints not normally heard. Additionally, inbound telephone calls shall be configurable to automatically answer, placing the inbound call on hold, while continuing to indicate the call until it is accepted at the console. In the case where the call is on a screen not currently being displayed, an option shall allow the console display to automatically change to the screen where the call is pending.

4.22 Intercom

Intercom to and from another operating position shall be via a VoIP connection and initiated by touching/clicking a screen control corresponding to the called party. The called party's console will flash the status word "CALL." When the called party desires to respond, the receiving operator shall touch/click the screen to answer the intercom call, and the audio shall be routed to the select speaker. The microphone path shall be configurable as full duplex, or requiring PTT. There shall be a one-way "announcement" mode that allows a console to broadcast a message to one, a group of, or all consoles.

The intercom shall provide a way to place a call to an operator position with an emergency level notification. The emergency intercom call shall be configurable to be placed into the call queue and play an emergency alert on the called console. The ability to place emergency intercom calls shall be configurable on a per-console basis.

The intercom shall provide a way to alert a called operator position that didn't answer the intercom call. The indication shall be visual and optionally audible, show which operator position placed the missed call, and remain until the missed call is returned.

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4.23 Console Monitoring

The system shall provide a Console Monitor capability for designated supervisor console positions. When configured, this function shall allow the supervisor's console to activate the function and select one or more other consoles to monitor. While activated, the monitoring console shall hear all conversations in the monitored console's selected endpoints. Multiple supervisor consoles shall be able to monitor a single console.

4.24 Tone and Voice Paging

The system shall provide paging controls integrated into each console position supporting all formats in the table below. Stacking and steering of pages as well as one-touch paging stacks shall be supported. Paging tones shall be produced in the RoIP Radio controller to ensure fidelity when low bit-rate CODECs are used.

When stacks of pages are sent, the system shall have a configuration to allow alert tones to be played either at the end of the stack, or after every page in the stack. When pages in a stack are going to more than one endpoint, the system shall allow the sending of those pages to be in parallel, reducing the total paging time.

Paging Formats	
Format	**Call Sequence**
Motorola 2 + 2, Quick Call 1 (Series Y)	Individual Call Group Call

Motorola 1 + 1
  Quick Call 2 (General)
  Quick Call 2 (Modified)
  Quick Call 2 (Extended)
	Individual Call Tone & Voice
	Group Call
	Tone Only
	Battery Save

Reach Two Tone	Reach Slow Reach Fast Reach Group Call Two Tone
Reach Single Tone	Reach Single Tone Battery Save
Avcall 2 + 2 (SELCAL)	Unit Call
General Electric	GE Type 99

Plectron
  Single Tone
  Duotone Fast
  Duotone Slow
  Motorola
	Individual Call

DTMF	Individual Call Group Call
5/6 Tone	Unit Call
Knox	Tone Only

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Paging Formats	
Format	Call Sequence
Customized	Individual Call Group Call

4.25 Time Synchronization

The system shall synchronize its internal time of day clock with an external time source using the Network Time Protocol (NTP) servers.

4.26 ANI and Caller ID

The system shall be capable of interfacing with external ANI signaling encoders/decoders, and shall optionally support MDC1200 ANI encoding/decoding without using external equipment. ANI information shall appear on the display in the radio call queue, activity history and in the associated radio circuit pad. The call queue and/or activity history displays shall provide an alias for the calling mobile(s) if so designated. The mobile ID shall be displayed in the associated radio circuit pad. In the event of an emergency call, both the mobile ID and the alias shall be displayed in red.

The system shall support the CLASS features Calling Number Delivery and Calling Name Delivery. When only Calling Number Delivery is available, the system shall search its database for a matching phone number and the name from the database shall be displayed in the call queue and in the selected endpoint status area.

4.27 External Voter Comparators

The system shall be capable of interfacing to a third-party Voting Comparator system through the use of Auxiliary I/O. The interface shall allow for control as follows:

- Force vote a receiver
- Disable a receiver
- Indicate which receiver is voted
- Indicate a failed voter/endpoint/receiver
- Indicate Receive status on a receiver

5.0 Console GUI Controls

The following configurable controls and capabilities shall be available in the system. The owner, through the use of a centralized administration tool may incorporate any of these parameters into the console screen design according to their functional requirements. A single screen shall have the capacity to display any combination of endpoint or controls, at any location on a screen. The size, fonts, colors, and icons shall be owner configurable. Owner configurable background highlights shall be supported utilizing different colors to accent application workspace grouping.

Tabbed modules shall be definable allowing easy access to endpoints and controls when required. All tabbed backgrounds and the tabs themselves shall be administratively configurable for color, text, font, and size and the addition of icons when required.

Required pad and functions are listed below in alphabetical order followed by a brief description of the associated operation.

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5.1 Action Pads

These pads when placed on the operator screen shall provide a navigation feature enabling the dispatcher to switch screens or invoke a "pop-up" screen with a single pad selection. These pads shall be configurable and shall contain the text necessary to identify the action to be taken.

5.2 Activity History

Each console position shall be capable of providing an activity history display. Activity history shall display the operator console's receive audio activity to the dispatcher on a per-endpoint / per-transmission basis. Filters shall be included enabling an operator to segregate emergency calls from regular calls. The activity history display shall provide a scroll function and allow the operator to search history to view call activity. Missed telephone calls shall also be displayed, and will allow the operator to automatically return a missed call with a selection from this list.

The activity history retention period shall be configurable from one (1) minute to twenty four (24) hours.

5.3 Alert Tones

These pads shall provide the control for generation of owner-programmable alert tones. Each shall be owner-programmable for frequency, duration, and level. When touched/clicked, the tone will be applied to all selected endpoints and will be indicated on the VU bar graph.

5.4 All Mute

This pad shall provide a timed mute function on all monitored endpoints. Mute time shall be owner configurable from 0 to 600 seconds. When active, the ALL MUTE function pad shall be flashed to alert the workstation operator of a mute condition. To cancel an ALL MUTE command, the operator shall simply touch the function pad again.

5.5 Analog/Digital Mode

This pad allows the dispatcher to change the console's outbound communication modes between analog and digital mode depending on the radio's capabilities. The feature operates in a toggle mode. The currently selected mode is displayed by an icon on the associated endpoint pad.

5.6 Auto Contacts

Auto contact pads shall allow the dispatcher to automatically dial or page a contact or group of contacts (for example, a pre-defined paging stack) by touching a pad on their screen. Auto contact pads shall be configurable to utilize endpoint hunt groups when defined for telephone contacts and radio endpoint/frequency steering when configured for contact paging. Auto contact dial strings shall be capable of including pauses.

5.7 Automatic Ring Down

The Automatic Ring Down (ARD) feature shall allow the console operator to access a telephone endpoint with a single action.

5.8 Aux Control

The system shall be capable of providing "Form C" contact closures to perform external control functions. Each "Form C" contact shall be titled in the system database, and programmed for

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latched or momentary function. Each auxiliary control pad shall visually indicate a change in state when activated.

5.9 Browser Control

These pads, when directed to a specific IP address, website or local document, such as online help manuals, streaming media, weather alerts, etc., shall invoke a screen within the operator's display providing the pre-configured content. Configuration of the URL and/or content shall not be accessible to the dispatcher and will be administered by authorized personnel only. The operator shall have the ability to close browser screens when not in use.

5.10 Call Enable (Show Ring)

This pad shall enable a console operator to dynamically change the ring status of endpoints assigned to his console. This allows console operators to adjust call answering responsibility as needed on a per endpoint, per operator basis.

5.11 Call Transfer

This pad shall enable a console operator to transfer an active telephone call to another console position that also has the same telephone endpoint configured. The receiving console shall show the inbound call with audible and visual ringing indication.

5.12 Call Queue

The operator interface shall be capable of providing a pending call indication display or call queue. It shall be possible to configure multiple queues on the console display and to route different types of calls to the queues. One type of queue shall be configurable for displaying missed radio and/or telephone calls, and shall allow the operator to automatically return a missed call with a selection from this queue.

5.13 Call Queue Display Area

This area shall display pending unanswered calls and shall place emergency calls in higher priority than regular calls. Call priority with each type of call (emergency or regular) shall be based on oldest call on top with subsequent pending calls listed below based on time received. The operator shall be provided a scroll capability to easily navigate the call queue display. An Answer Call button shall be available to select a pending call within the queue for answering. The system shall allow for the automatic removal of unanswered calls from the call queue after a configurable length of time.

5.14 Channel Marker

This pad shall activate a channel marker tone on an endpoint. The tone shall be automatically transmitted on the endpoint at a preset interval. Inbound or outbound activity on the endpoint shall temporarily interrupt the channel marker tone. The endpoint shall visually indicate the channel marker on all console positions. Any console shall be able to terminate the channel marker. The tone's frequency, level, duration and interval shall be configurable.

5.15 Console Timer

This control shall allow the console operator to set a timed reminder that is associated with an endpoint. The timer control shall allow up to 20 timers to be started. Each timer shall be separately configurable by the operator for duration, and shall have controls to Add, Remove,

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Silence, Start, and Pause the timer. Each timer shall have a method for naming the timer. The timer tool shall indicate when the timer is complete with both audible and visual indications. Each timer shall have an operator settable duration of up to 24 hours.

5.16 Contact Dialer

The operator console shall be capable of displaying a contact dialer module for manual DTMF digit dialing. Contact dialer appearance shall be administratively configurable to modify font, text, size, and display colors. The dialer shall be configurable to allow the display of contact lists as a pop-out option. The system administrator shall be able to filter the contacts displayed for each console user. The contact list shall be configurable to display the contact's name, number, or both. Basic functions such as clear, back, flash and dial shall be available.

5.17 Contact Directory

The system shall provide a list of pre-defined contacts which can be configured for autodial utilizing the endpoint hunt group feature or manual endpoint select and dial. The system shall be capable of displaying contacts either individually or in structured groups.

5.18 Contact Directory Search

The contact list shall be searchable by utilizing the alpha keypad. Selection of alpha characters from the keypad shall immediately reduce the selectable contacts. Continued entry of alpha characters shall further reduce the viewable contacts within the list. The characters entered shall be displayed in the alpha search display area. The operator shall then be able to select the desired contact to dial a preprogrammed telephone number over a selected endpoint.

5.19 Dial Display Area

This area shall display the current number dialed as well as the contact name, if configured.

5.20 Dial Screen (Shortcut)

This pad shall cause the dial screen to appear on the dispatch screen. From this screen manual DTMF dialing as well as contact autodial shall be performed. If a telephone endpoint is selected to make an outbound call, the dial screen shall be owner configurable to display automatically without touching/clicking this pad.

5.21 Dynamic Group

Dynamic Group pads shall allow a dispatcher to interactively build Endpoint groups to allow functions to be performed on a group of endpoints. Touching/clicking the endpoint group pad will place all the endpoints in multi select and allow PTT on the entire group. Likewise, the entire group may be placed in unselect or patch, or reverted to default state with a single touch of the proper function button.

5.22 Hook Flash

The hook flash pad shall perform a quick on hook/off hook action which the SIP PBX interprets to perform a specific function (for example, answer call waiting or call transfer).

5.23 Recall (Redial Last Number)

This pad shall cause the last number dialed to be redialed. The last number dialed pad shall display the number.

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5.24 CTCSS

This pad shall disable CTCSS allowing the dispatcher to eavesdrop or listen in on a pre-configured CTCSS enabled radio endpoint without transmitting. This pad shall function as a toggle enabling and disabling the CTCSS function when selected.

5.25 Emergency Display Clear

This pad shall clear the emergency indications on all selected radio endpoints. It shall not change the emergency status of the endpoint, only the indicators visible on the endpoint.

5.26 Encryption Enable/Disable

For radio endpoints that require control of encrypted audio, the encryption enable/disable pad shall cause a selected radio endpoint to activate/de-activate encryption algorithms supported within the system. It shall be possible to set certain radio endpoints to always be encrypted, disabling this control for that endpoint.

5.27 Frequency Control

To minimize screen clutter, a centralized frequency select module will be displayed enabling an operator to select any one of up to ninety-nine (99) frequencies available on multiple transmit frequency radios. The frequency select module can be located on any or all screens and shall display the frequencies of the current select endpoint. Upon selection of another radio endpoint, the frequency select module will automatically show the Select radio name and the available frequencies associated with that respective radio. Selection of a frequency on the tool shall update the frequency on the Select radio endpoint, and shall be reflected on the endpoint pad on all consoles. It shall be an option to allow each console to independently select a different frequency on an endpoint at the same time.

Frequency alias tables shall be available to allow the naming of frequencies. There shall not be a limit to the number of alias tables available and these tables can be assigned to more than one radio endpoint if so deemed appropriate.

5.28 Forward Calls

This pad shall allow an operator to forward all regular and emergency calls to another console position. Both consoles shall receive an indication that the calls have been forwarded. The forwarding console shall have the ability to end the call forwarding event.

5.29 Group Pads

Endpoint group pads shall allow functions to be performed on a preset group of endpoints. Touching/clicking the endpoint group pad will place all the endpoints in multi select and allow PTT on the entire group. Likewise, the entire group may be placed in unselect or patch, or reverted to default state with a single touch of the proper function button.

5.30 Headset Monitor

This pad shall temporarily override the select speaker mute function, which is automatically enabled when a headset is inserted into the console jack box. Automatic select speaker muting shall also be permanently disabled by the owner on a per console basis by editing the system database.

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5.31 Hold

Touching/clicking the hold pad shall place the selected telephone endpoint in a "Hold" condition. While the endpoint is on "Hold," receive audio shall not be presented to the operator and the status word HOLD shall be present on the endpoint pad. To reselect the endpoint, the operator shall retouch/reclick the desired endpoint pad.

5.32 Input Alert/Alarm

These pads shall represent an external input to the system. When the input is activated, the pad shall provide a visual indication, and also an optional audible indication, of the activation. The indication shall be configurable to require touching/clicking the pad to acknowledge, to acknowledge on de-activation of the input, or to automatically acknowledge after a settable period of time. Each alert/alarm shall be configurable to be logged and to create an SNMP trap on the network. The user or console that acknowledges the Alert shall be logged.

5.33 Instant Recall Recording

As part of the activity history display, instant recall shall be available to each console position enabling playback of receive audio on a per console basis. Selection of a call entry shall automatically commence call playback on a pre-designated speaker.

5.34 Instant Transmit

These pads shall provide the workstation operator with an integrated instant transmit function for an associated radio endpoint.

5.35 Endpoint Pad

Endpoint pads shall provide access to the circuits assigned to the console for the current shift in the form of "electronic push buttons." Each shall be labeled with names and status colors. The first two lines of text on an endpoint pad shall identify the associated endpoint. The last line shall show the endpoint status. Each pad shall be owner programmable to display visual call alerts, audible call alerts, and the default endpoint monitor status on a per console basis.

5.36 Mute

The mute function pad shall control the individual audio level of a given radio endpoint. If the radio endpoint is presently in a monitor condition, receive audio shall be presented to the workstation via the workstation unselect speaker, touching/clicking the mute function pad and then touching/clicking the radio endpoint pad shall change the endpoint to a mute condition. Likewise, if the radio endpoint is in the mute condition, repeating the action shall reverse the process and place the radio endpoint in a monitor condition.

5.37 Next Call

This function pad shall automatically select the next highest priority call pending in the call queue (radio and/or telephony). Call priority will be established by emergency status and received aging.

5.38 Paging Dialer

A paging module shall be available for manual paging operations as follows:

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5.38.1 Add

This pad shall insert a selected page into the active page queue shown in the page display area.

5.38.2 Alpha/Page

This pad shall toggle between alpha and numeric text, enabling manual entry of the page code characters and/or numbers. Entries will be shown in the page display area.

5.38.3 Backspace

This pad shall delete the last manually entered digit of the page code shown in the page display area.

5.38.4 Cancel

This pad shall cancel an active page while in progress. The page display area shall display the page cancel status.

5.38.5 Clear/Clear All

This pad shall clear the entire page code in case of operator error. The page display area shall display the page code.

5.38.6 (Page) Code Entry Pads

These pads shall allow the workstation operator to manually enter page codes. As keypad pads are touched/clicked, the numbers touched/clicked shall be displayed in the page display area.

5.38.7 Contact (Directory)

This pad shall display the contact page directories. The page contact directory shall allow the operator to scroll through defined contacts and groups if so configured. Use of the alpha text pads shall provide a means of searching the contact database.

5.38.8 (Page) Display Area

This area shall display the currently entered paging code as well as the previous entry.

5.38.9 (Page) Format Pad

The format pad shall toggle and allow selection of the desired pager format when performing manual page entries. The actual displayed text shall indicate the format provided. The following industry standard paging formats shall be provided:

- 5/6 Tone
- Avcall 2+2 (Selcal)
- Custom Single Tone
- Custom Two Tone
- DTMF
- General Electric
- Knox
- Motorola Quickcall I
- Motorola Quickcall II - Extended
- Motorola Quickcall II - General
- Motorola Quickcall II - Modified
- Plectron – Duotone

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- ♦ Plectron – Single Tone
- ♦ Reach Single Tone
- ♦ Reach Two tone

5.38.10 Send

This pad shall confirm a correct operator entry and engage the pager unit to send the codes on the selected radio endpoint.

5.38.11 Recall

This pad shall resend the last page code initiated.

5.38.12 Remove

This pad shall remove the last page entered in the page display.

5.39 Patch 1-5

Touching/clicking a patch function pad shall add the selected endpoint to the patch conference. If no endpoint is selected, touching/clicking a patch function pad shall add the workstation operator to the patch conference. Touching/clicking a pad that is in a patch conference shall select the endpoint and remove it from the patch conference. Touching/clicking it twice shall disconnect the endpoint (select; then disconnect).

The default condition for operator participation in a patch shall be configurable as to whether the operator is by default entered into the patch upon selection or is not automatically entered upon patch setup.

The patch function shall have a configurable inactivity timer. This timer shall notify the console operator when a patch has been inactive for a configurable period of time. The notification shall be both visual and audible. If the patch becomes active again before any action is taken, the notifications shall automatically cease.

5.40 PTT (On-Screen)

This pad shall automatically invoke a "Push-to-Talk" transmit action on the Select or Simul Select endpoints.

5.41 PTT Indicator

This graphic indicator shall display the PTT status of that specific console when the respective console is transmitting.

5.42 Release

This pad shall automatically cause the selected endpoint or group to revert to the default state, which may be configured for mute or unselect.

5.43 Repeat Enable/Disable

This pad shall turn the in-cabinet repeat and the external (function tone) repeat on and off. When enabled, in-cabinet repeat shall take inbound receive audio and send it back out as transmit audio, along with PTT, to an attached radio.

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5.44 Ringer Disable

This pad shall silence all audible alerts for inbound calls. Touching/clicking this pad activates the feature, which is indicated with a color change on the pad. Touching/clicking this pad again deactivates the feature, re-enabling audible alerts.

5.45 Simul Select

Touching/clicking the simul select function pad shall allow subsequently touched/clicked endpoints to act in parallel. Transmit endpoint audio and PTT functions shall be sent to all selected endpoints simultaneously. Touching/clicking the simul select pad again shall deactivate all of the selected endpoints.

5.46 Supervisory Takeover

Touching/clicking the supervisory takeover pad shall allow the console to take control of an endpoint that is being used at another console. Only the console that initiated the takeover shall be able to transmit on the endpoint. Other consoles shall be able to have the endpoint in select or unselect to monitor the audio activity. When the takeover console de-selects the endpoint, its operation at other consoles shall return to normal.

5.47 System Clock

This module shall be placed on the screen and be configurable for 12- or 24- hour display formats. Multiple clocks shall be supported on the same or multiple screens and each shall support programming to a unique time zone if desired.

5.48 Test Tone

This pad shall cause a 1000 Hz tone to be generated and inserted into the transmit audio path. Tone level shall be indicated on the console VU bar graph.

5.49 Volume Control

This function module shall allow the operator to adjust a selected endpoint's Select and Unselect audio levels. The Volume display shall indicate the name of the selected endpoint for clarity.

5.50 VU Meter

The operator screen shall support the display of a VU bar graph that depicts the measured audio amplitude of outbound audio from the dispatcher's console position. This module shall be configurable for size and may be located anywhere on the operator's screen.

6.0 Training and Installation Assistance

Training shall be provided on site concurrent with installation assistance by vendor field engineering personnel. Training shall cover theory of operation, troubleshooting techniques, system database entry, and emergency restoration procedures. Maintenance training shall be conducted at a level of comprehension suitable for an electronic technician. Operator training shall also be provided.

The following types of training shall be provided:

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6.1 Operator Training

On-site operator training shall be provided to all dispatchers and supervisors. Up to four (4) sessions over a two-day period of on-site Operator Training shall be available. This portion of the training period should not exceed two hours per session. All course materials shall be included.

6.2 Maintenance Training

On-site maintenance training shall be provided to maintenance personnel. This portion of the training period should not exceed two days per session. All course materials shall be included.

6.3 System Administration Training

System administration training shall be provided for up to four (4) supervisory and/or maintenance personnel. This portion of training period should not exceed eight hours per session. All course materials shall be included. Installation Supervision

6.4 Warranty and Maintenance

On-site warranty and maintenance by field engineering personnel is required for three years with this proposal. This warranty and maintenance should include travel, parts and labor.

Dispatch Console Furniture
Scope of Work

This specification defines minimum requirements for the equipment and operational requirements for dispatch console furniture.

The successful bidder shall supply six (6) positions of new dispatch console furniture and shall facilitate the professional installation of the furniture by trained installers. This shall be done as part of the Northeast Arizona Regional Dispatch Center project and coordinated with the installation of new dispatch console electronics. The successful bidder shall work closely with Navajo County officials to ensure that a minimum acceptable level of public safety communications is maintained throughout the installation and conversion process.

The successful bidder shall assume responsibility for any third party services they contract.

EQUIPMENT
1. Thirty (36) new 23" flat panel monitors
2. Six (6) monitor stands or combination of stands capable of holding six (6) 23" flat panel monitors stacked no more than two (2) high.
3. Six (6) dispatch station chairs capable of holding a maximum of 300 pounds each.
4. Six (6) dispatch stations, each with the following specifications:
    a. Work surface adjusts vertically
    b. Monitor array adjusts vertically and has the ability to tilt
    c. Integrated environmental controls (heating and cooling)
    d. Ready access to all technology and storage
    e. Hub providing multiple dedicated power, voice, and data entry points
    f. Minimum of ten (10) power outlets for monitor area and minimum of eight (8) power outlets for computer rack cabinets
    g. At least a minimum of a 12U rack kit for mounting of patch panel/CPU/UPS/Switches, etc.
    h. Efficient and accessible cable management system for outside and inside cabling by station
    i. Outboard technology storage with active cooling
    j. Reading and ambient lighting
    k. A minimum of 32" of counter space
    l. Modular component flexibility with the ability to expand and reconfigure is preferred
5. All furniture and appliances must be in compliance with UL and OSHA standards.
6. On-site warranty and maintenance by field engineering personnel is required for three years with this proposal. This warranty and maintenance should include travel, parts and labor.

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Tower Work
Scope of Work

This specification defines minimum requirements for the equipment and operational requirements for upgrades to the communications sites:

At the Admin Butte Site, the successful bidder shall:

1. Purchase an ice bridge for leg "A" to Navajo County building.
2. Purchase two (2) 151.5-159.5 MHz fiberglass omni directional antenna with 5.25 dB gain able to handle up to 500 watts
   a. Receive antenna to be located at top of tower (±280 AGL)
   b. Transmit antenna to be located on leg of tower (±260 AGL)
3. Purchase 800' of 7/8" coax, appropriate for VHF Radio Systems.
4. Purchase and install One (1) HC115Q1-16F, 150-174MHZ 16 CH HYBRID CNTRL STATION COMBINER, connected to the new antennas
5. Install Dispatch Console System interfaces for 7 existing radio systems:
   District 1, District 2, Chase, Emergency Management, Public Works, Petrified Forest, Joseph City Fire
6. Install 5 new Control Stations and Dispatch Console System interfaces:
   Sun Valley Holbrook Fire, Holbrook EMS, AIRS-4, DPS (UHF)

At the Pinetop Health Site, the successful bidder shall:
1. Purchase two (2) 148-174 MHz fiberglass omni directional antenna with 2.5 dB gain able to handle up to 500 watts.
   a. Receive antenna to be located at top of tower (±50 AGL)
   b. Transmit antenna to be located on leg of tower (±40 AGL)
2. Purchase 200' of 1/2" coax, appropriate for VHF Radio Systems.
3. Purchase and install One (1) HC115Q1-08F, 150-174MHZ 8 CH HYBRID CNTRL STATION COMBINER, connected to the new Tx and Rx antennas
4. Install 1 new Control Station and Dispatch Console System Interface:
   Pinetop/Lakeside PD

At the NPC Show Low Site, the successful bidder shall:
1. Purchase two (2) 148-174 MHz fiberglass omni directional antenna with 2.5 dB gain able to handle up to 500 watts
   a. Receive antenna to be located on leg of tower (±100 AGL)
   b. Transmit antenna to be located on leg of tower (±80 AGL)
2. Purchase 600' of 7/8" coax, appropriate for VHF Radio Systems.
3. Purchase and install One (1) HC115Q1-08F, 150-174MHZ 8 CH HYBRID CNTRL STATION COMBINER, connected to the new Tx and Rx antennas
4. Install 1 new Control Station and Dispatch Console System Interface:
   Show Low PD

At the Taylor Road Yard Site, the successful bidder shall:

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1. Purchase and install two (2) 148-174 MHz fiberglass omni directional antenna with 2.5 dB gain able to handle up to 500 watts
   a. Receive antenna to be located on leg of tower (±40 AGL)
   b. Transmit antenna to be located on leg of tower (±30 AGL)
2. Purchase 200' of 1/2" coax, appropriate for VHF Radio Systems.
3. Purchase and install One (1) HC115Q1-08F, 150-174MHZ 8 CH HYBRID CNTRL STATION COMBINER, connected to the new Tx and Rx antennas
4. Install 1 new Control Station and Dispatch Console System Interface: Snowflake-Taylor PD

At the Winslow Hwy 99 Tower Site, the successful bidder shall:
1. Purchase and install two (2) 148-174 MHz fiberglass omni directional antenna with 2.5 dB gain able to handle up to 500 watts
   a. Receive antenna to be located on leg of tower (±100 AGL)
   b. Transmit antenna to be located on leg of tower (±80 AGL)
2. Purchase 350' of 7/8" coax
3. Purchase and install One (1) HC115Q1-08F, 150-174MHZ 8 CH HYBRID CNTRL STATION COMBINER, connected to the new Tx and Rx antennas
4. Install 1 new Control Station and Dispatch Console System Interface: Winslow PD

At the Mogollon Complex Site, the successful bidder shall:
1. Purchase two (2) 148-174 MHz fiberglass omni directional antenna with 2.5 dB gain able to handle up to 500 watts
   a. Receive antenna will be located on roof of building
   b. Transmit antenna will be located on opposite end of roof of building
2. Purchase 200' of 1/2" coax
3. Purchase and install One (1) HC115Q1-08F, 150-174MHZ 8 CH HYBRID CNTRL STATION COMBINER, connected to the new Tx and Rx antennas

At all Tower Sites, the successful bidder shall:
1. Conduct a site evaluation to determine if the site is free of hazardous materials and ready to house the equipment based on equipment and installation space requirements.
2. Provide a separate Bill of Materials for all hardware (mounts, hangers, jumpers, connectors, grounding kits, etc.) needed to install antennas, coax, and combiners at each site. Successful bidder will be responsible for purchase of materials listed on Bill of Materials and negotiation with Installation Vendor for timelines of installation. The Installation Vendor will be determined in a separate Bid published by Navajo County
3. Use existing antenna structures (tower installation, roof mount, or parapet mount) where available and designed for the intended application. Where antenna structures do not exist or are inadequate, provide non-penetrating roof-mounted structures.
4. All new coax shall be secured using appropriate mounting hardware. Nylon ties are not acceptable.
5. Observe standards for proper grounding to ensure against site failure due to lightning or power fluctuations and to meet the manufacturer's warranty requirements.
6. Purchase and install a 12 Volt DC, 100 Amp Rack Mount Redundant Power Supply for the radios being connected to the Control Station Combiner. Power Supply shall contain a battery backup for maintaining power to the radios during an internal fault. Power supply shall support fault

notification via Ethernet through SNMP or SMTP protocols, or through dry contacts connected to the Dispatch Console System providing a visual fault indicator to Dispatch

7. Purchase and install appropriate 12 volt fused power distribution panel to support radios being connected to Control Station Combiner
8. All unused connections on the Control Station Combiner shall be appropriately terminated.
9. Three year warranty on all the above work and equipment
10. On-site warranty and maintenance by field engineering personnel is required for three years with this proposal. This warranty and maintenance should include travel, parts and labor.

Dispatch Recording System
Scope of Work

This specification defines minimum requirements for the equipment and operational requirements for dispatch recording system.

The successful bidder shall supply a dispatch recording system for our mission critical 24/7 operation and shall facilitate the professional installation of the system by trained installers. This shall be done as part of the Northern Arizona Regional Dispatch Center project and coordinated with the installation of new dispatch console electronics. The successful bidder shall work closely with Navajo County officials to ensure that a minimum acceptable level of public safety communications is maintained throughout the installation and conversion process.

The successful bidder shall assume responsibility for any third party services they contract.

EQUIPMENT CAPABLE OF THE FOLLOWING:
1. Record, capture and archive media from E911 PSAPs, Next Generation E911 PSAPs, P25, DMR, MOTOTRBO, Dispatch Consoles, Radio over IP (RoIP) networks, VoIP telephones, digital PBX telephones, analog sources, T1 trunks, ISDN-PRI trunks, SIP trunks, IP-dispatch consoles, trunked and conventional 2-way radio, and PC Screens. This is not intended to be an all-inclusive list.
2. Recorder interfaces and licenses provided shall include:
   a. (24) Twenty-four analog channels for POTS/E-911 lines
   b. (64) Sixty-four G.711 channels via IP Spans
   c. (3) Three 1-GB Ethernet. 1 for device management and 2 for collecting IP Spans
3. Recordings should be available for immediately recall, forensic replay, incident reconstruction, training, and export to portable media.
4. Equipment should be rack-mountable.
5. Recorder should be upgradeable as Phone/Radio/Console technology evolves and becomes required by Dispatch.
6. System should be resilient with redundant power, hard disk, network, and archive storage.
7. Recorder needs to employ security systems that controls access by users' and protection necessary in today's cyber world.
8. System should conform to NENA i3 standards.
9. Minimum of 100,000 hours of recording with the ability to attach recorder to third-party Storage Area Network (SAN).
10. Unlimited client access.
11. Training for 911 staff.
12. On-site warranty and maintenance by field engineering personnel is required for three years with this proposal. This warranty and maintenance should include travel, parts and labor.
13. Costs for extended maintenance contracts should be included.

Dispatch Post-Installation Support
Scope of Work

This specification defines minimum requirements for the Post-Installation Support of this Dispatch Project.

The successful bidder shall provide for the following Post-Installation Support:
- Three (3) years of support shall be provided by the vendor as a single line item, or one (1) year of support with up to two (2) option years as separate line items.
- Support provided by successful vendor shall be for all equipment, hardware, software and labor provided by said vendor and their subcontractors.
- Vendor shall provide a written process to Navajo County for 24x7 access to support provided by vendor.
- Vendor shall respond on-site within 4 hours when notified of a major failure of a component that has a life-safety impact on Public Safety
    - On-Site is defined as the specific location of the failure, when it can be determined, or as the Northeast Arizona Regional Dispatch Center, Holbrook Office when the specific failure location is not determined.
    - The vendor may be considered as On-Site when remotely connected to the Dispatch Console System and is actively working to resolve an issue that does not require replacement of equipment.
- Vendor shall respond on-site within 24 hours when notified of a failure that does not have a life-safety impact on Public Safety
- Vendor shall cover all costs related to travel to the On-Site location as determined above.
- Vendor shall cover all costs related to replacement of equipment when manufacturer's warranty is still in effect.

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ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Henry R. Darwin
Director

September 30, 2015

Ms. Tracy Bouvier
CDBG Program Specialist
Northern Arizona Council of Governments
119 East Aspen Avenue
Flagstaff, AZ 86001

RE: Navajo County: Holbrook 911 Equipment Upgrade

Dear Ms. Bouvier:

The Arizona Department of Environmental Quality Air Quality Division has reviewed your letter dated September 17, 2015, concerning the Holbrook 911 Equipment Upgrade Project you submitted for a General Conformity Determination with the Arizona State Implementation Plan in accordance with Clean Air Act § 176(c)(1); Title 40 Code of Federal Regulations Part 93, Subpart B §§ 93.150-165; and Arizona Administrative Code R18-2-1438 (approved into the Arizona State Implementation Plan April 23, 1999; effective June 22, 1999). Your project is not located in a maintenance or nonattainment area for any regulated pollutants.

The Air Quality Division has concluded that a General Conformity Determination is not required for the following reason:

X   Project's total emissions of each identified air pollutant to be emitted from the project would be less than *de minimis* levels in Title 40 CFR § 51.853(b) [and §93.153(b)] as described or calculated

Disturbance of particulate matter and possible asbestos is anticipated during construction. Considering prevailing winds, to comply with other applicable air pollution control requirements and minimize adverse impacts on public health and welfare, the following information is provided for consideration:

PREVENT RELEASE OF REGULATED ASBESTOS FIBERS

Title 40 Code of Federal Regulations § 61.145 contains requirements to survey for the presence of asbestos at each demolition or renovation activity prior to demolition or renovation (Asbestos

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National Emission Standards for Hazardous Air Pollutants. A 10-business days advance notification of demolition is required for every demolition project (unless at an exempt facility) and for any renovation project that would disturb at least 260 linear feet, on pipes, at least 160 square feet on other components, or at least 35 cubic feet where length or area cannot be measured. A permit may be required. To determine applicability of asbestos survey and work practice standards, please contact the Environmental Program Specialist, Air Quality Division Compliance Section, at (602) 771-2333.

REDUCE DISTURBANCE of PARTICULATE MATTER during CONSTRUCTION

This action, plan or activity may temporarily increase ambient particulate matter (dust) levels. Particulate matter 10 microns in size and smaller can penetrate the lungs of human beings and animals and is subject to a National Ambient Air Quality Standard (NAAQS) to protect public health and welfare. Particulate matter 2.5 microns in size and smaller is difficult for lungs to expel and has been linked to increases in death rates; heart attacks by disturbing heart rhythms and increasing plaque and clotting; respiratory infections; asthma attacks and cardiopulmonary obstructive disease (COPD) aggravation. It is also subject to a NAAQS.

The following measures are recommended to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off the construction site:

I.   Site Preparation and Construction
    A. Minimize land disturbance;
    B. Suppress dust on traveled paths which are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air;
    C. Cover Trucks when hauling soil;
    D. Minimize soil track-out by washing or cleaning truck wheels before leaving construction site;
    E. Stabilize the surface of soil piles; and
    F. Create windbreaks.

II. Site Restoration
    A. Revegetate any disturbed land not used;
    B. Remove unused material; and
    C. Remove soil piles via covered trucks.
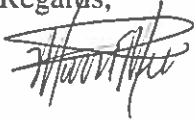
The following rules applicable to reducing dust from open areas, dry washes or riverbeds, roadways and streets are enclosed:

- Arizona Administrative Code R18-2-604 and R18-2-605
- Arizona Administrative Code R18-2-804

Should you have further questions, please do not hesitate to call me at (602) 771-4858, or Lhamo LeMoine at (602) 771-2373.

Regards,

Marina Mejia, Manager
Air Quality Division, SIP Section

Enclosures (2)

cc: Sherri Zendri, Administrative Counsel
       Lhamo LeMoine, Administrative Secretary
       File No. 347155

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Environmental Opinion Sheet

CDBG: Navajo County; 911 Equipment Upgrade

These are the environmental considerations issued by the Arizona Department of Housing CDBG Program. Please check Option A or Option B. Please provide additional information for an Option B response.

8. Clean Air Act [Sections 176(c), (d), and 40 CFR 6, 51, 93]

__X__Option A:

The project is located within an "attainment" area, OR, if within a "nonattainment" area, conforms with the EPA-approved State Implementation Plan (SIP) and the project requires no individual NESHAP permit or notification.

_____Option B

The project lies within a non-attainment area for which there is no EPA approved State Implementation Plan (SIP). The following action is recommended:

_____   __10/01/15_____

Signature   Date

Marina Mejia, State, Implementation Plan Manager, Air Quality

Printed Name and Title

Arizona Department of Environmental Quality

Agency

THANK YOU!

(ADEQ Air Quality)

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applicant being a customer. Permits issued under this subsection shall comply with the requirements in subsection (D)(3) and be in a format prescribed by the Director. Each delegated authority shall:

1. Maintain a copy of each permit issued for the previous five years available for inspection by the Director;
2. For each permit currently issued, have a means of contacting the person authorized by the permit to set an open fire if an order to extinguish open burning is issued; and
3. Annually submit to the Director by May 15 a record of daily burn activity, excluding household waste burn permits, on a form provided by the Director for the previous calendar year containing the information required in subsections (D)(3)(e) and (D)(3)(f).

H. The Director shall hold an annual public meeting for interested parties to review operations of the open outdoor fire program and discuss emission reduction techniques.
I. Nothing in this Section is intended to permit any practice that is a violation of any statute, ordinance, rule, or regulation.

Historical Note
Adopted effective May 14, 1979 (Supp. 79-1). Amended effective October 2, 1979 (Supp. 79-5). Correction, subsection (C) repealed effective October 2, 1979, not shown (Supp. 80-1). Former Section R9-3-602 renumbered without change as Section R18-2-602 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-602 renumbered to R18-2-802, new Section R18-2-602 renumbered from R18-2-401 effective November 15, 1993 (Supp. 93-4). Amended by final rulemaking at 10 A.A.R. 388, effective March 16, 2004 (Supp. 04-1).

R18-2-603. Repealed

Historical Note
Adopted effective May 14, 1979 (Supp. 79-1), Former Section R9-3-603 renumbered without change as Section R18-2-603 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3), Former Section R18-2-603 renumbered to R18-2-803, new Section R18-2-603 renumbered from R18-2-403 effective November 15, 1993 (Supp. 93-4). Repealed effective October 8, 1996 (Supp. 96-4).

R18-2-604. Open Areas, Dry Washes, or Riverbeds
A. No person shall cause, suffer, allow, or permit a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, without taking reasonable precautions to limit excessive amounts of particulate matter from becoming airborne. Dust and other types of air contaminants shall be kept to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means.
B. No person shall cause, suffer, allow, or permit a vacant lot, or an urban or suburban open area, to be driven over or used by motor vehicles, trucks, cars, cycles, bikes, or buggies, or by animals such as horses, without taking reasonable precautions to limit excessive amounts of particulates from becoming airborne. Dust shall be kept to a minimum by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means.

C. No person shall operate a motor vehicle for recreational purposes in a dry wash, riverbed or open area in such a way as to cause or contribute to visible dust emissions which then cross property lines into a residential, recreational, institutional, educational, retail sales, hotel or business premises. For purposes of this subsection "motor vehicles" shall include, but not be limited to trucks, cars, cycles, bikes, buggies and 3-wheelers. Any person who violates the provisions of this subsection shall be subject to prosecution under A.R.S. § 49-463.

Historical Note
Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-604 renumbered without change as Section R18-2-604 (Supp. 87-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-604 renumbered to R18-2-804, new Section R18-2-604 renumbered from R18-2-404 and amended effective November 15, 1993 (Supp. 93-4).

R18-2-605. Roadways and Streets
A. No person shall cause, suffer, allow or permit the use, repair, construction or reconstruction of a roadway or alley without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Dust and other particulates shall be kept to a minimum by employing temporary paving, dust suppressants, wetting down, detouring or by other reasonable means.
B. No person shall cause, suffer, allow or permit transportation of materials likely to give rise to airborne dust without taking reasonable precautions, such as wetting, applying dust suppressants, or covering the load, to prevent particulate matter from becoming airborne. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits.

Historical Note
Adopted effective May 14, 1979 (Supp. 79-1). Former Section R9-3-605 renumbered without change as Section R18-2-605 (Supp. 87-3). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-605 renumbered to R18-2-805, new Section R18-2-605 renumbered from R18-2-405 effective November 15, 1993 (Supp. 93-4).

R18-2-606. Material Handling
No person shall cause, suffer, allow or permit crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust without taking reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note
Section R18-2-606 renumbered from R18-2-406 effective November 15, 1993 (Supp. 93-4).

R18-2-607. Storage Piles
A. No person shall cause, suffer, allow, or permit organic or inorganic dust producing material to be stacked, piled, or otherwise stored without taking reasonable precautions such as chemical stabilization, wetting, or covering to prevent excessive amounts of particulate matter from becoming airborne.
B. Stacking and reclaiming machinery utilized at storage piles shall be operated at all times with a minimum fall of material and in such manner, or with the use of spray bars and wetting agents, as to prevent excessive amounts of particulate matter from becoming airborne.

Historical Note
Section R18-2-607 renumbered from R18-2-407 effective

ARTICLE 8. EMISSIONS FROM MOBILE SOURCES (NEW AND EXISTING)

R18-2-801. Classification of Mobile Sources

A. This Article is applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or agricultural equipment used in normal farm operations.

B. Unless otherwise specified, no mobile source shall emit smoke or dust the opacity of which exceeds 40%.

Historical Note
Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-801 renumbered to Section R18-2-901, new Section R18-2-801 renumbered from R18-2-601 effective November 15, 1993 (Supp. 93-4).

R18-2-802. Off-road Machinery

A. No person shall cause, allow or permit to be emitted into the atmosphere from any off-road machinery, smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

B. Off-road machinery shall include trucks, graders, scrapers, rollers, locomotives and other construction and mining machinery not normally driven on a completed public roadway.

Historical Note
Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-802 renumbered to Section R18-2-902, new Section R18-2-802 renumbered from R18-2-602 effective November 15, 1993 (Supp. 93-4).

R18-2-803. Heater-planer Units

No person shall cause, allow or permit to be emitted into the atmosphere from any heater-planer operated for the purpose of reconstructing asphalt pavements smoke the opacity of which exceeds 20%. However three minutes' upset time in any one hour shall not constitute a violation of this Section.

Historical Note
Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-803 renumbered to Section R18-2-903, new Section R18-2-803 renumbered from R18-2-603 effective November 15, 1993 (Supp. 93-4).

R18-2-804. Roadway and Site Cleaning Machinery

A. No person shall cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.

B. In addition to complying with subsection (A), no person shall cause, allow or permit the cleaning of any site, roadway, or alley without taking reasonable precautions to prevent particulate matter from becoming airborne. Reasonable precautions may include applying dust suppressants. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

Historical Note
Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Amended effective February 3, 1993 (Supp. 93-1). Former Section R18-2-804 renumbered to Section R18-2-904, new Section R18-2-804 renumbered from R18-2-604 effective November 15, 1993 (Supp. 93-4).

R18-2-805. Asphalt or Tar Kettles

A. No person shall cause, allow or permit to be emitted into the atmosphere from any asphalt or tar kettle smoke for any period greater than 10 consecutive seconds, the opacity of which exceeds 40%.

B. In addition to complying with subsection (A), no person shall cause, allow or permit the operation of an asphalt or tar kettle without minimizing air contaminant emissions by utilizing all of the following control measures:

1. The control of temperature recommended by the asphalt or tar manufacturer;
2. The operation of the kettle with lid closed except when charging;
3. The pumping of asphalt from the kettle or the drawing of asphalt through cocks with no dipping;
4. The dipping of tar in an approved manner;
5. The maintaining of the kettle in clean, properly adjusted, and good operating condition;
6. The firing of the kettle with liquid petroleum gas or other fuels acceptable to the Director.

Historical Note
Adopted effective February 26, 1988 (Supp. 88-1). Amended effective September 26, 1990 (Supp. 90-3). Former Section R18-2-805 renumbered to Section R18-2-905, new Section R18-2-805 renumbered from R18-2-605 effective November 15, 1993 (Supp. 93-4).

ARTICLE 9. NEW SOURCE PERFORMANCE STANDARDS

R18-2-901. Standards of Performance for New Stationary Sources

Except as provided in R18-2-902 through R18-2-905, the following subparts of 40 CFR 60, New Source Performance Standards (NSPS), and all accompanying appendices, adopted as of July 1, 2006, and no future editions or amendments, are incorporated by reference as applicable requirements. These standards are on file with the Department and shall be applied by the Department. These standards can be obtained from the U.S. Government Printing Office, Superintendent of Documents, Mail Stop SSOP, Washington D.C. 20402-9328.

1. Subpart A - General Provisions.
2. Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971.
3. Subpart Da - Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978.
4. Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.
5. Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.
6. Subpart E - Standards of Performance for Incinerators.
7. Subpart Ea - Standards of Performance for Municipal Waste Combustors for Which Construction is Commenced after December 20, 1989 and on or Before September 20, 1994.
8. Subpart Eb - Standards of Performance for Large Municipal Waste Combustors for Which Construction is Commenced after September 20, 1994 or for Which

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THE STATE OF ARIZONA

GAME AND FISH DEPARTMENT

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DEPUTY DIRECTOR
TY E. GRAY

October 27, 2015

Tracy Bouvier
Northern Arizona Council of Governments
119 East Aspen Avenue
Flagstaff, AZ 86001-5222

Re: Review of the CDBG Project: Navajo County 911 Equipment Upgrade

Dear Ms. Bouvier:

The Arizona Game and Fish Department (Department) reviewed your Project Evaluation Request letter, dated September 17, 2015 regarding the replacement of County 911 equipment in Holbrook, AZ. As the proposed project is located in a previously disturbed area, with the present habitat providing relatively low value to wildlife, the Department does not anticipate any significant adverse impacts to wildlife resources would occur as a result of this project.

Thank you for the opportunity to review this project. The report generated for you from the On-Line Environmental Review Tool (enclosed) should provide general recommendations and additional contact information. If you have any questions regarding this letter, please contact me at (623) 236-7513.

Sincerely,

Audrey Owens
Project Evaluation Program Specialist, Habitat Branch
Arizona Game and Fish Department

cc: Laura Canaca, Project Evaluation Program Supervisor
        Dave Dorum, Habitat Program Manager, Region I

AGFD# M15-09223808

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Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
CDBG Project: Navajo County 911 Equipment Upgrade

Project Description:
To replace County 911 emergency equipment in Navajo County.

Project Type:
CDBG: Community Development Block Grant, Improvement to Existing Structure

Contact Person:
Melissa Swain

Organization:
AZGFD

On Behalf Of:
OTHER_STATE

Project ID:
HGIS-02303

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

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Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.

2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).

3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.

4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.

5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov

6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

CDBG Project: Navajo County 911 Equipment Upgrade
Aerial Image Basemap With Locator Map
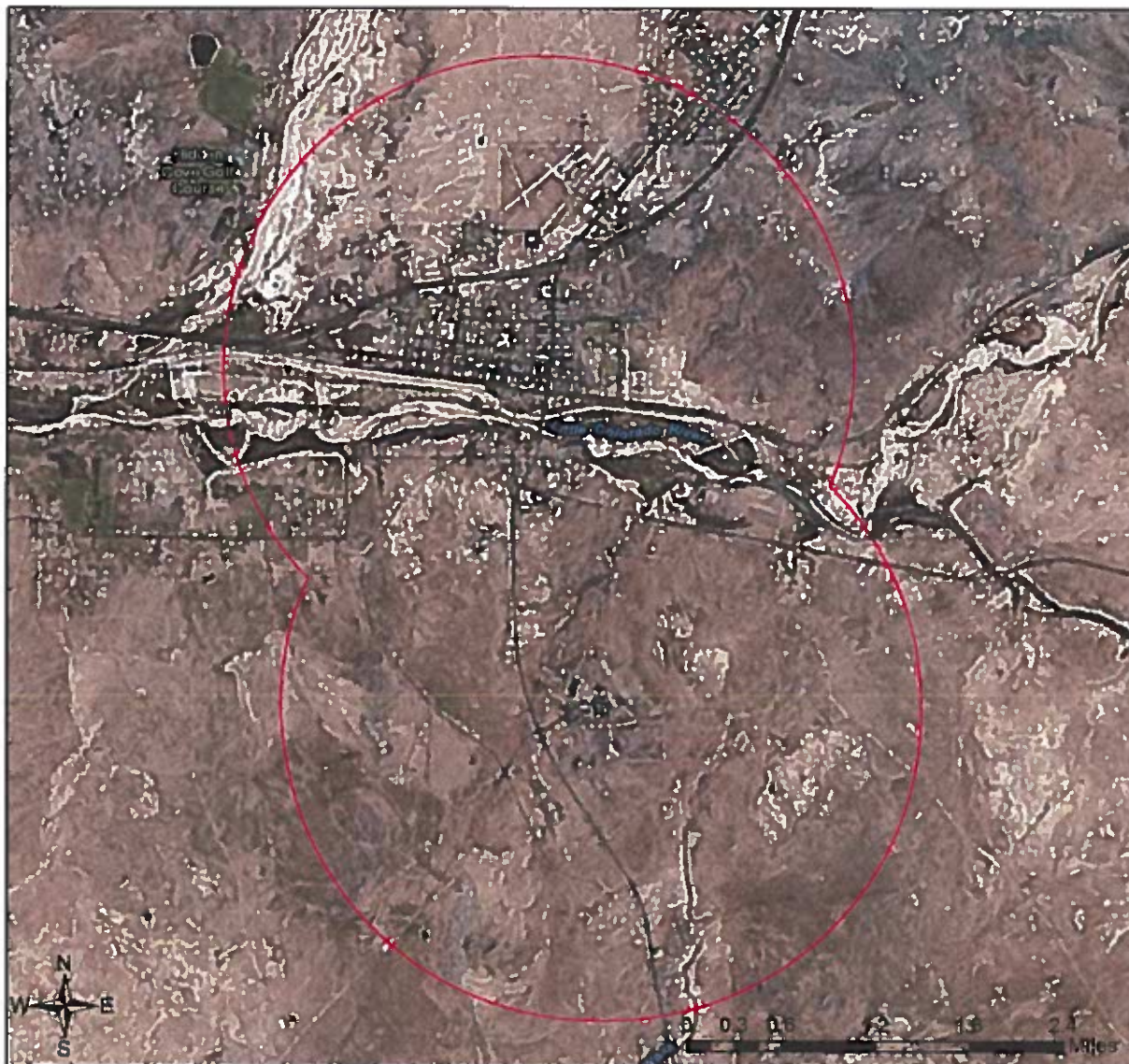
☐ Project Boundary

▢ Buffered Project Boundary

Project Size (acres): 3.86
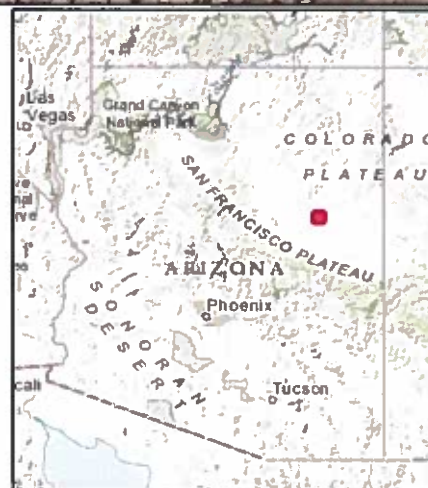
Lat/Long (DD): 34.8702 / -110.1524

County(s): Navajo

AGFD Region(s): Pinetop

Township/Range(s): T17N, R21E

USGS Quad(s): HOLBROOK, PORTER CANYON

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong),

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CDBG Project: Navajo County 911 Equipment Upgrade
Web Map As Submitted By User

☐ Project Boundary

☐ Buffered Project Boundary

Project Size (acres): 3.86

Lat/Long (DD): 34.8702 / -110.1524

County(s): Navajo

AGFD Region(s): Pinetop

Township/Range(s): T17N, R21E

USGS Quad(s): HOLBROOK; PORTER CANYON

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

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CDBG Project: Navajo County 911 Equipment Upgrade
Topo Basemap With Township/Ranges and Land Ownership
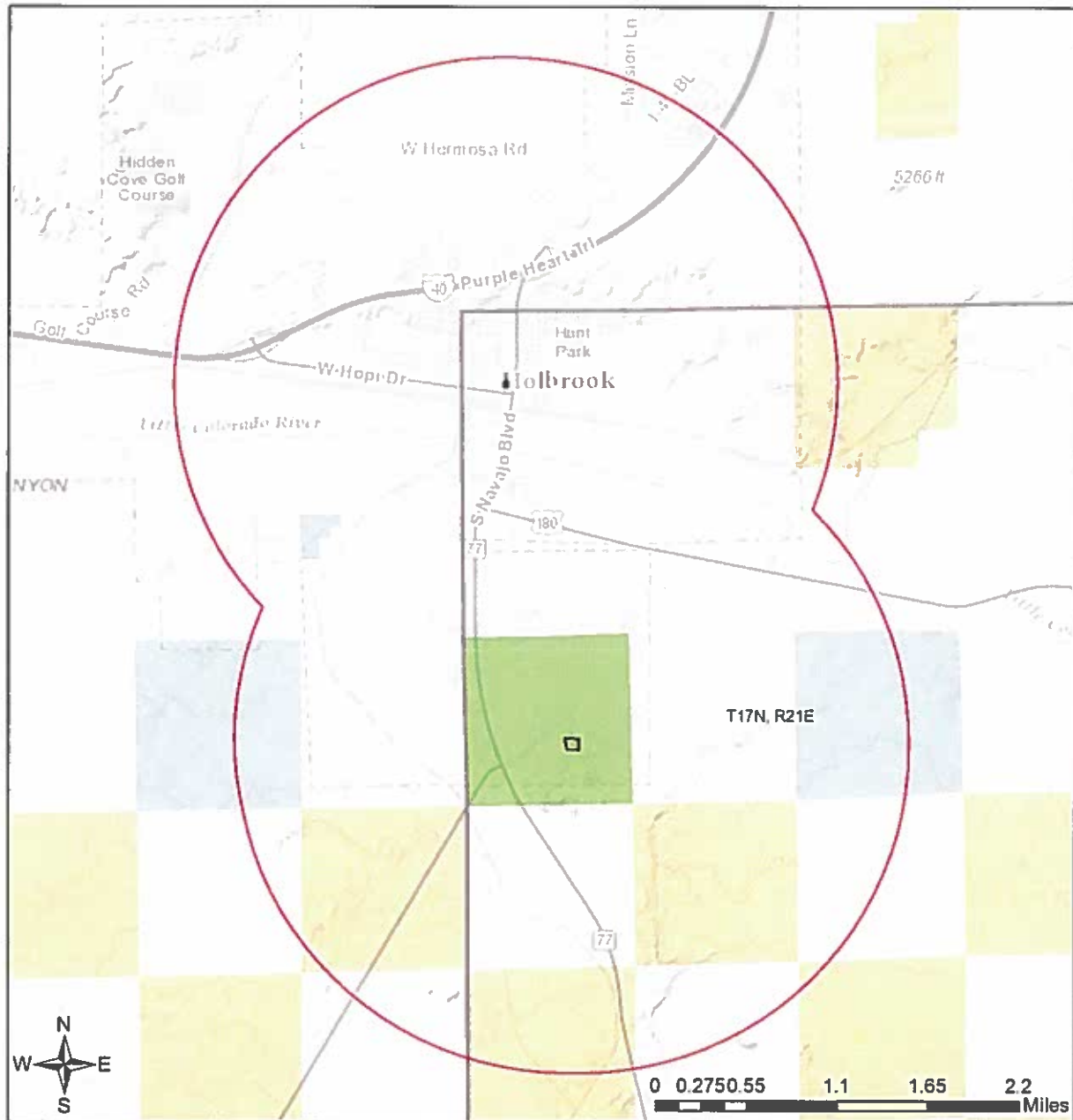
☐ Project Boundary	☐ Mixed/Other	Project Size (acres): 3.86
☐ Buffered Project Boundary	☐ National Park/Mon.	Lat/Long (DD): 34.8702 / -110.1524
☐ Township/Ranges	☐ Private	County(s): Navajo
☐ AZ Game and Fish Dept.	☐ State and Regional Parks	AGFD Region(s): Pinetop
☐ BLM	☐ State Trust	Township/Range(s): T17N, R21E
☐ BOR	☐ US Forest Service	USGS Quad(s): HOLBROOK; PORTER CANYON
☐ Indian Res.	☐ Wildlife Area/Refuge	
☐ Military		

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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Special Status Species and Special Areas Documented within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Canis lupus baileyi	10J area Zone 2 for Mexican gray wolf	LE,XN				
Gymnogyps californianus	10J area for California condor	LE,XN				
Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC	S			1B
Sclerocactus papyracanthus	Grama-grass Cactus	SC			SR	

Note: Status code definitions can be found at http://www.azgfd.gov/w_c/edits/hdms_status_definitions.shtml.

Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Anaxyrus microscaphus	Arizona Toad	SC				1B
Anodonta californiensis	California Floater	SC	S			1A
Antilocapra americana americana	America Pronghorn					1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Aspidoscelis pai	Pai Striped Whiptail					1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Castor canadensis	American Beaver					1B
Catostomus discobolus	Bluehead Sucker	PS		S		1A
Catostomus sp. 3	Little Colorado Sucker	SC	S	S		1A
Chordeiles minor	Common Nighthawk					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Cynomys gunnisoni	Gunnison's Prairie Dog	SC		S		1B
Dipodomys spectabilis	Banner-tailed Kangaroo Rat			S		1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Gymnorhinus cyanocephalus	Pinyon Jay			S		1B
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Idionycteris phyllotis	Allen's Lappet-browed Bat	SC	S	S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Microtus mexicanus	Mexican Vole					1B
Mustela nigripes	Black-footed Ferret	LE,XN				1A
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Neotoma stephensi	Stephen's Woodrat					1B
Perognathus flavus goodpasteri	Springerville Pocket Mouse	SC	S			1B
Peromyscus nasutus	Northern Rock Mouse					1B
Setophaga petechia	Yellow Warbler					1B

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Species of Greatest Conservation Need
Predicted within Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Troglodytes pacificus	Pacific Wren					1B
Vulpes macrotis	Kit Fox					1B

Species of Economic and Recreation Importance Predicted within Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Antilocapra americana americana	America Pronghorn					1B
Callipepla squamata	Scaled Quail					1C

Project Type: CDBG: Community Development Block Grant, Improvement to Existing Structure

Project Type Recommendations:

No recommendations have been identified for this project type.

Project Location and/or Species Recommendations:

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area. Please contact:
Arizona Department of Agriculture
1688 W Adams St.
Phoenix, AZ 85007
Phone: 602.542.4373
https://agriculture.az.gov/environmental-services/np1

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